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ISD News and Views

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Farewell to ISD and State IT Staff

In addition to Mike Trevor, there are several other IT professionals within ISD and state government as a whole who have already left or will soon be leaving us to pursue other interests.

We wish to acknowledge the efforts of these people who have contributed greatly to the success of the state's IT organization over the years.

So once again the probing *News & Views* staff, armed with pad and pencil, ventured out in search of those who would take the time to talk with us. We found a few, and here are their stories:

Darvin Barnes

Darvin will be retiring as an Information Systems Support Specialist within the Telecommunications/Network Services Bureau. He began working for the state in 1961, as a surveyor with the then Department of Highways. Darvin began his career in information processing as a programmer on engineering applications. He worked in the networking area of ISD for years and was a key player in establishing and troubleshooting the state's SNA network.

Joe Beausoleil

Joe has also decided to take advantage of the state's early retirement program, and will be ending his career with ISD on December 29th.

Joe began his government career as a programmer with the Department of Highways in 1968, where he worked part-time while he finished

college. Joe has long been recognized as having exceptional knowledge of large IBM Operating Systems internals. Upon his transfer to the Department of Administration in 1977, he brought order and stability to the management and upgrading of the MVS operating system, on which so many state government services depend. With Joe as the principle systems programmer and Manager of Technical Services, we have enjoyed maximum up-time of vital computer operations 24 hours a day, 7 days a week, year after year. Joe's extensive technical knowledge and seemingly tireless work ethic have contributed greatly to the availability and performance of ISD's mainframe services over the years.

Joe will be sorely missed by those of us who remain with ISD; we know that each of you join us in wishing him good fortune in his future endeavors.

Jim Christnacht

In 1973, Jim Christnacht (a.k.a. "Xnacht" and "Dad") began working for the state with the Department of Administration, Data Processing Division. Jim has served as the principle financial manager for the Information Services Division for over 20 years.

Jim has played a key role in helping the Division drive computer rates down year after year. He was instrumental in establishing the cost-saving practice of buying used computer equipment. It was he that had the creative forethought to lead the way in entering into a term contract for time-pay financing of computer components.

Jim's creative, yet conservative, approach to dealing with expenditures has been a major factor in improving the cost effectiveness of the Division.

Dick Elston

Dick will be retiring from his position as a Systems Analyst in the Application Services Bureau. In the late 1970's, Dick's pioneering work in establishing standards and using the phased approach to systems analysis and design set the standard for subsequent projects within the Division and across state government. Dick always brought enthusiasm, optimism, and the highest professional principles to his work and he served as a role model for all who worked with him.

Dave Marshall

Dave is leaving his position as Telecommunications/Network Bureau Chief to take a teaching position at the Helena Vo-Tech. He started with ISD in 1982, and quickly achieved superhero status as "Micro Man", the state's first microcomputer specialist.

He became Chief of the Information Center Bureau in 1985. As one of the early managers of the Information Center, Dave was instrumental in establishing a direction for the management of PC's as an integral part of computing capability in state government. Dave provided valuable assistance to user agencies as they established their office automation plans.

Dave moved up to Chief of Telecommunications/Network Services Bureau in May 1990. He played a crucial role in the planning, development, and implementation of the state's data network capability, including fiber linking the capital complex, and its charge-back fees. He was instrumental in guiding the state as the PC platform rapidly evolved into networking environments. He also played a key role in the integration of telecommunication functions within ISD.

Dave received the Governor's award for outstanding employee in 1993 in recognition of his contributions to networks and the planning assistance he has provided agencies such as the Legislative branch.

The tremendous breadth of Dave's technical knowledge and his insightful analysis of information and issues were of invaluable assistance to information processing professionals throughout state government.

Jack Slevin

Jack decided to take advantage of the state's early retirement program and ended his career with ISD on September 30, 1993.

Jack started with the Department of Administration on November 12, 1965, as a "Machine Operator". A machine operator

programmed, operated, and serviced IBM Electronic Accounting Machines (EAM) (for those of you in need of a history lesson). Jack's final position with state government was as the state's Security Officer.

Jack is not only missed by those of us who remain with ISD, but by every data processing professional in state government. We wish Jack good fortune in all his many future endeavors.

State IT Staff

Other IT staff within state government that are leaving include Jim Herman of Fish, Wildlife, and Parks and Grafton Beasley of OPI. Jim and Grafton were involved in several statewide information technology decisions, and helped provide direction for the state in many areas. We wish them well in their future pursuits.

Term Contract Status

DEC/Wyle

The LPx model from Digital does not contain a built-in video adapter. Therefore, you will need to select an adapter and include it in your configuration for all LPx models. There are three adapters from which to choose, and they have been added to the term contract. The latest price list has been sent via ZIP!Mail. If you would like a copy, give Brett (0515) or Dan (2029) a call.

Computerland/IBM

ComputerLand is experiencing availability problems on many models in the PS/2 product line. You may want to call Mike Price (443-3200) for shipping schedules before ordering. Availability is not a problem for the Model 9553 which has just been added to the contract. You should consider the 9553 as a comparable and more readily available alternative to the PS/2 9556 and 9557 models. The color Thinkpad models 720C, 750C, and 750CS continue to be difficult to get.

ComputerLand has also added printers, SCSI-2 devices, and Pentium ValuePoint models to the latest version of the term contract. The latest price list has been distributed electronically.

Computerland/HP

ComputerLand is proposing price increases on add-in memory, as well as on the popular LaserJet 4 and 4M models. If approved, these increases are likely to take effect around the middle of January as current stock is depleted and replaced by more costly to manufacture stock. You might want to consider placing orders for these items in the next couple of weeks before potential price increases become effective. The latest price list has been electronically distributed. Call Dan (2029) or Brett (0515) if you would like a copy. For technical questions or product availability call Earl at Computerland (329-7660).

Notebook PC's--Tips and Trends

Things to think about when purchasing a notebook PC relate to the monitor, keyboard, pointing devices, disk drives, PC Card slots, and battery. The active matrix color screen is the top of the line, but you might find a dual-scan passive matrix display as an acceptable and considerably cheaper alternative. Consider a model with an adjustable screen if you plan on using it to give presentations or will be using it in a variety of environments.

Make sure the keyboard offers full size keys. There are several technologies available for pointing devices, try them before buying. Built-in pointing devices are generally preferable to separate trackballs or mice. A removable hard drive can be a desirable feature for the security conscious and a removable floppy drive can provide room for an extra battery.

The ability to attach devices to your notebook or connect to other devices is provided by PC Card slots. Make sure that the number and type of PC Card slots meet your requirements and that the hardware and software are PCMCIA compliant. Type I slots are commonly used for memory, Type II slots for communications peripherals, and Type III slots for hard drives.

The average life of a battery in a notebook PC is 2 hours, 25 minutes. To stretch the life of a battery, turn the CPU to slow, turn down the display intensity, power down the parallel and

serial ports, use a disk cache, and buy a PC that offers active power management.

The battery life of nickel cadmium (nicad) batteries has been a very limiting factor in the effective use of portable PC's. New nickel metal-hybrid batteries provide a 30% longer life than nicad models, and lithium polymer batteries, now under development, will have twice the life of nicad batteries. Pentium notebooks aren't likely to be available for up to two years.

SBAS Support Unit News

With the new schedule that ISD is implementing to backup disk files during the week come changes to SBAS processing. In order to free a block of time for ISD to run the backups, SBAS daily processing will be scheduled at 9:30 p.m. instead of 11:00 p.m. If you burn the midnight oil trying to get documents into SBAS on a particular day, enter documents by RJE, or have a program that must finish before SBAS runs, remember you only have until 9:30 p.m. If you have a lengthy or daily program that must finish before SBAS, schedule it with Dave Smith and mention that it must finish before SBAS starts.

SBAS OE&E users are able to request certain reports by selecting the report option (PF7) on the main menu. These users should be aware that they can stop printing the JCL for the report jobs that they submit. After selecting the report, a screen appears where the user is able to enter parameters for the job. One parameter is the MSG CLASS. This option tells the operating system where to put the JCL portion of your report. MSG CLASS=8 holds the JCL in output class 8 (option s.o8 in TSO/SPF). The JCL is not printed unless the user changes the output class in TSO before it is purged seven days later. MSG CLASS=9 sends the JCL report to held output (s.h in TSO/SPF). If the user does not purge it, it will be printed 24 hours later. MSG CLASS=A will print the JCL output when the job is run. If you don't want your JCL to print, we suggest using the default of MSG CLASS=8. You won't have all that extra paper to recycle, it will save you money, and if you ever want to look at the JCL, it will be in the output class 8 queue for several days to browse or print.

We're in full swing with the Cash Management Improvement Act (CMIA). If you have any federal funding that falls under the current CMIA contract, we are beginning to monitor your compliance with the contract and are looking for changes in check clearance patterns. Please inform Terry Atwood at the Accounting Bureau if you make any changes in the accounting entities, warrant type, document series, or other information that we use to monitor the programs that your agency has under the CMIA contract. We are also beginning to collect the information and statistics we need to write a contract to include the federally funded programs that were exempt the first year, but come under CMIA in fiscal year 1995.

If you need assistance with SBAS, OE&E, ICC, or using SBAS files, call the SBAS Support Unit in the Accounting Bureau at ext. 3092.

Mainframe

Tape Subsystem Update

Over the past eight months the Central Computer Operations Bureau has upgraded our tape processing and library equipment. We have installed the IBM 3490 Tape Subsystem, consisting of 16 tape drives and configured through dual control units. Concurrent with the tape install, we have improved our library processes by installing an automated cartridge retrieval system and a tape barcode control system.

The 3490 is a cartridge system (square tape) that offers improved performance, capacity, and reliability over the 3420 tape system (round tape). A comparison of the two technologies follows:

	3420	3490
Data Transfer Rate (MB/s)	1.25	4.50
Automatic Loaders	None	Yes
Recording Tracks	9	18
Recording Density (BPI)	6,250	38,000
Data Compaction	None	Yes
Recording Media	Iron Oxide	Chromium Dioxide

One might ask, "What do these strange categories have to do with the price of tea in China?" The answer is: nothing. However, these categories have a great deal to do with tape performance, capacity, and reliability, which I'll attempt to explain below.

Performance

The Data Transfer Rate is a measurement of how much data can be transferred between the 3090/400J Central Processor Unit (CPU) and the tape drive controllers. The 3490 controllers contain a large data buffer. Data can thus be transferred to and from mainframe central storage at electronic speed rather than at the speed of the cartridge drive. The 3490 can receive and send a maximum of 4.5 million bytes (characters, numbers, etc.) every second to and from the CPU. Computer jobs that require tape operations process faster with an overall reduced clock time.

The 3490 tape drives are equipped with Automated Cartridge Loaders. MVS recognizes when scratch cartridges are present in the loaders. It will automatically cause one of these cartridges to be loaded when a job requests a scratch tape. No action is required by a computer operator. This improves the turnaround time for batch jobs since they do not have to wait for scratch tape mounts.

Capacity

The Recording Tracks on the 3490 are double that of the 3420. This fact taken alone would mean that the 3490 can hold twice as much data as the 3420. However, there are two additional factors which contribute significantly to the increased capacity of the 3490's.

The Recording Density on the 3490, which is measured in bytes per inch, is six times that of the 3420. The Data Compaction facilities of the 3490 are the main reason for the increased capacity. Data recorded on the cartridges is compressed. This compression is a function of the 3490 hardware, so there is no additional processing cost in CPU overhead to our users to compact the data.

These three factors will drastically reduce multivolume tape files. One converted computer job that utilized print spool tapes reduced five tape spool volumes into one cartridge volume. The direct result of these factors is reduced tape mount and storage charges.

Reliability

The 3490 achieves low error rates because of the chromium dioxide media used in the manufacturing of the tape cartridges and a new improved error correction scheme in the hardware. The chromium dioxide media was selected because it produced fewer errors than iron oxide and could handle higher recording densities. The tape media is completely enclosed within the cartridge, protecting it from contamination. Over 95% of reruns due to tape errors will be eliminated.

We currently have a library of 14,000 cartridges and 16 cartridge tape drives. We have developed cartridge work methods and published user conversion guidelines. The conversion is not difficult to complete, but does require minor JCL changes. If you require technical assistance in converting your reel tapes to cartridge tapes, we will provide it. All that's left for you to do is to begin converting your round tapes so you can reduce your tape processing costs and begin to enjoy the many benefits this technology offers.

Our conversion plan goal is to have all applications using cartridge tapes by July 1, 1994.

Tape Library Processes

As stated above, we have improved our tape library processes by installing Autotrieve, an automated cartridge retrieval system and QWIKSCAN, a tape barcode control system.

The Autotrieve system is comprised of the following three major components:

1. Host software that works with our tape management system (CA-1) and operating system to automatically capture scratch, vault, and specific mount data.

2. A computerized controller which maintains and disseminates cartridge data to the automated cartridge storage subsystem tape racks.

3. The cartridge storage subsystem which utilizes a series of LED lights to identify cartridge locations.

This Autotrieve system eliminates errors and saves considerable time locating tape cartridges by identifying tapes with color-coded LED lights for specific uses. Each tape cartridge has three LED lights associated with its library storage slot. The three LED lights, green, red, and gold in color, represent the following activities:

Green - Depicts a live input tape for a specific mount request by a tape drive.

Red - Depicts a scratch tape stored in that specific storage slot.

Gold - Depicts a vault tape to be picked for delivery to our off-site vault.

QWIKSCAN is a barcode control system used to scan and track tape cartridge movement to and from the off-site tape vault. Each tape is uniquely identified by a barcode label. QWIKSCAN software communicates with the mainframe tape management system to obtain tape cartridge media movement data. Outgoing and incoming vault tape lists are downloaded to the QWIKSCAN controller. Once the lists are generated, the cartridges are pulled and then scanned. This action ensures 99.98% accuracy of tape cartridge media movement. Scanning tape cartridges can be compared to scanning food at the grocery store.

Miscellaneous

If your applications use tape datasets we STRONGLY encourage you to catalog them. This takes a little more effort up front, but the benefits to be gained by cataloging your tape datasets far outweigh the one-time effort to set it up. The additional effort will usually involve defining a Generation Data Group (GDG) for the tape datasets. ISD's Application Services section and the End User Computing section can assist you in this effort if you need help.

Those of you who already catalog your tape datasets should be able to convert to using the new cartridge tapes with a simple one-time change to the UNITNAME parameter in your JCL. If you do not catalog your tape datasets, we STRONGLY encourage you to begin cataloging them as part of the conversion to the new cartridge tapes.

This conversion also provides the perfect opportunity for you to review your application tape usage to assure the most efficient and economical use of tape. We STRONGLY recommend that you go through such a review when converting to cartridge tape. The cartridge tape conversion guideline has a section devoted to tape issues to consider during a conversion.

Be sure to pick up a copy of the Cartridge Tape Conversion Guidelines, if you haven't already received a copy.

If you have questions or require technical assistance in converting your reel tapes to cartridge tapes, please call Glen Stroop at ext. 2910. If you have general questions concerning tape or DASD utilization, please call Frances Greene at ext. 3889 or Diane Lemon at ext. 3336.

-- Richie Bender, Methods & Security Section

Access to Output on SDSF Expanded

As of November 29, 1993, the ACF2 security system is controlling access to your jobs and output via SDSF (ISPF S.H, etc.). We have chosen to use ACF2 security because of the many benefits it provides over the previous method:

1. Security can be distributed to agency security officers.

2. Each agency can determine for itself who can view and manipulate (release, hold, purge, cancel, etc.) agency jobs and output.

3. Users can be authorized to view and manipulate the jobs and output of other users.

4. With ACF2 providing the security for SDSF, changes take place immediately.

Under the "old" method, SDSF used the JOB NAME as the control point for security. If the first six characters of a job name matched your LOGONID, you could manipulate the job and view its output. But if you submitted a job whose job name did not match your LOGONID, you lost control of it. You could no longer manipulate it or view its output. However, a job submitted under someone else's

LOGONID whose job name matched your LOGONID, came under your control.

The "new" ACF2 security interface uses the LOGONID as the control point for security. Any job submitted under your LOGONID is under your control, **regardless of its job name**. This feature is ideal for users who perform an I/O Control function. They will be able to view and manipulate jobs with any job name as long as it was submitted under their LOGONID.

By default you will be able to control jobs that run with your LOGONID. Jobs submitted via TSO automatically inherit the LOGONID of the submitter, so users can control jobs they submit. This is true even if no ACF2 rule exists for your LOGONID. So, with no changes at all, most users will have at least the same level of control over their jobs as they had with the old security.

ACF2 security enables your security officer to grant other users access to your jobs. Likewise, you can be given access to someone else's jobs and output. This was very difficult under the old security and had to be controlled by ISD. With ACF2 security, a security officer can write an ACF2 rule for the LOGONID that owns a job that allows other users to view and/or manipulate the job and its output.

There are two levels of access that can be given to users, READ and ALTER. Users with READ access can view output but cannot control or manipulate it. Users with ALTER access can manipulate a job and its output. They will be able to release it, hold it, re-queue it, purge it, etc.

Agency security officers have been given documentation on writing ACF2 rules governing the viewing and control of agency jobs and output under SDSF. Contact your agency security officer if you want to take advantage of the new security features of SDSF.

SDSF Owner and Prefix Commands

The SDSF PREFIX command controls what jobs are displayed on an SDSF panel based on job name. "PREFIX CA1111*" will cause job names that begin with CA1111 to be displayed.

The SDSF OWNER command controls what jobs are displayed on SDSF panels based on the LOGONID specified in the OWNER command. "OWNER CA1111" would cause jobs submitted under a LOGONID of CA1111 to be displayed.

With ACF2 now providing the security for SDSF, a combination of these commands can be very useful (see related article). This is especially true for those who perform an I/O control function, submitting many jobs with job names that don't match their LOGONID. This will work as long as the jobs run under the same LOGONID.

Assume an I/O control person's LOGONID is CA1111. Specifying "OWNER CA1111" and "PREFIX *" will cause SDSF to display all jobs submitted under LOGONID CA1111 regardless of their job name. And since the security control point is the LOGONID, user CA1111 will be able to view and manipulate the output of the displayed jobs regardless of their job names.

TECHTALK

MS-DOS 6.x Interlnk

A new computer interconnection utility called "INTERLNK" is available beginning with MS-DOS versions 6.0 and higher. The new utility is part of the standard DOS package. With the INTERLNK program and a cable that connects two computers, you can use one computer to access data and run programs on another computer.

Any two PC's can be connected; however, the primary advantage of using this utility is where you use a laptop or notebook computer to gather field data and upon returning to your home office need to download this data into a desktop PC. The downloading can be accomplished without the hassle of swapping disks. The only additional hardware requirement is that of a cable to connect a parallel or serial port on each of the two machines. I used a 6-foot cable with male 25 pin RS-232 connections on each end, connecting the two parallel ports.

The Interlnk program sets up a "client-server" relationship between the two computers. Generally you will use the laptop as the **client** and the desktop PC as the **server**. The server basically becomes inactive but its drives and printers become available to the client. The disk drives of the server are used by the client with new drive designations assigned by Interlnk. If the client already has two drives where A: is the floppy and C: is the fixed drive, the server might also have drives A:, B:, and C:. Interlnk makes the server available to the client by re-assigning its drives as D:, E:, and F:.

To activate Interlnk, the client machine must have the Interlnk.exe file located on its hard drive and a device driver statement in the config.sys file. The Interlnk driver is loaded on bootup. The server is activated by just entering the "Interssvr" command.

Complete detailed instructions are available in the DOS manual under "Features for Your Laptop Computer". If you have any questions about using Interlnk you can call Dave Howse at End User Computing, ext. 1593.

Keyboard Default and Remapping in EXTRA!

Keyboard remapping in the latest version of EXTRA! for Windows can be rather confusing. The problem stems from the fact that the re-mapper is an option under the "Preferences" menu choice of the EXTRA! Session menu, while your default keyboard selection is made under the "Configure" option of the "Executive" menu that is available from either the Executive Icon or the "Windows" selection of the EXTRA! Session menu.

When selecting a different keyboard template as your configuration default, the one important thing to remember is that you need to have EXTRA! running, but you have to close your sessions. The session window will show "EXTRA!:(not connected)" in the title bar. From here you can click on the Executive Icon or from the session window choose the Windows menu selection and Executive option to display the Executive window. Now choose "Configure" and then "Keyboard Mapping". Select the desired keyboard template and then "OK". Your default keyboard in your EXTRA! configuration is now changed for as long as EXTRA! remains active. You can save this configuration by clicking on "File" and then "Save Configuration" from the Executive Window; otherwise when you are closing EXTRA!, you will be prompted to save the new configuration.

To create a custom keyboard configuration, select the Preferences option of the Session Window and then click on "Keyboard Remapper". Select "File" and "OPEN" to be presented with a variety of keyboard default templates to use as the basis of your custom configuration. After choosing a template, you can modify it by clicking and dragging from the "Functions" box onto the desired Key Cap. The Function box displays the functions available for the selected Function Type. After you finish building your custom keyboard, you can save it with "File" and "Save As". If you did use a default template, you must use "Save As" because templates cannot be overwritten. When the "Save As" window appears, type in a description of your configuration in the "Keyboard Map" box. Do not enter a file name; a file name is generated automatically. What you enter will appear in the keyboard template selection menu. Enter a useful description because your custom configuration will be available for others to use as well.

If you any questions about configuring your EXTRA! for Windows keyboard, call Dave Howse in End User Computing at ext. 1593.

Hiding Ranges in 1-2-3 Printouts

Have you ever needed to print a spreadsheet with a certain column or range blanked out? Lotus 1-2-3 is very good at hiding data in printouts.

If you want your printout to include space for the hidden data, apply the hidden format. The printout will appear blank where the hidden data would have normally appeared. To hide a range of data, select /Range Format Hidden and specify the range to hide. Or, from WYSIWYG, select :Format Color Text and select a color. Then select :Format Color Background and select the same color. To redisplay a range of data, select /Range Format, specify any other format other than Hidden, and then

specify the range to unhide. Or, from WYSIWYG, select :Format Color Text and :Format Color Background and choose different colors for each.

To hide an entire column(s) in your printout, select /Worksheet Column Hide and specify the column(s) to hide. The printout will appear as though the columns don't even exist. Or, from WYSIWYG, move the mouse pointer to the vertical line to the right of the column letter (if you are hiding several columns, move to the rightmost column). Drag the dotted line to the left until it meets the line at the left side of the column (or the leftmost column). Column letters of hidden columns do not appear in the worksheet border and ordinary navigation skips over hidden columns. To display hidden columns, select /Worksheet Column Display and specify which of the column(s) to display from the hidden columns that appear with (asterisk) after the column letter. Or, from WYSIWYG, hold down SHIFT and click the line at the right of the column to the left of the hidden column. This resets the column to the default width. To display more than one column, click once for each column.

If you have any questions about hiding data ranges in 1-2-3 printouts, please call Irvin Vavruska at ext. 2858 or Jerry Kozak at ext. 2907, both from End User Computing.

Inconsistent Rounding with Lotus

When you use the @round function, the computer converts floating point base-10 numbers from decimal to binary. The numbers that are entered are not represented exactly the same way internally (in the computer), unless they are an even power of 2. When a number is entered that is not an even power of 2, the computer must select one of two floating point numbers to represent it. One is slightly larger than the number that was entered, and one is slightly smaller. The computer selects the number that is as close as possible to the number that was entered. For example, when 139.525 is rounded to two decimal places, the result is 139.52. 1-2-3 must use either a number that is a half bit larger than 139.525 or a half bit smaller. One half bit larger would round to number up to 139.53 and one half bit smaller would round it down to 139.52. Internally the result is 139.52499999999999999999, which is slightly less than 0.525. Consequently, the result of the formula @round(139.525,2) is 139.52.

To properly round numbers consistently, the following process should be utilized. The floating point number must first become a whole number. Multiply the number or formula being rounded by 10^X, where X is the power necessary to create a whole number.

Examples:

original	Result	Stock solution	Result
@round(139.525,2)	139.52	@round(139.525*1000, 1)/1000	139.53
@round(2.495,2)	2.49	@round(2.495*1000, 1)/1000	2.5
@round(17.835,2)	17.83	@round(17.835*1000, 1)/1000	17.85

If you have any questions contact Jerry Kozak at 444-2907 or Irvin Vavruska at 444-2858.

ULTRACLIP--Another Windows Freebie from EUC

UltraClip is a utility to extend the functionality of the Windows clipboard. It lets you do the following:

- store multiple objects placed on the clipboard and view thumbnails for quick retrieval
- print cheat sheets of the thumbnails
- save and retrieve the objects as .CLP files to and from the disk
- read .BMP, .PCX, .GIF and .WMF (Aldus) images off the disk for further use
- save and restore the current UltraClip desktop and all its objects

UltraClip stores its clip objects in memory--you'll need sufficient memory to support whatever you wish to access. Large color bitmaps can consume several megabytes, so beware. Once UC is running, just use the paste icon or menu option to paste the current contents of the clipboard into UC. If there is a graphic on the clipboard, UC makes a copy, creates a window, and displays it. You can store as many objects as memory and resources allow. UltraClip has an Auto Paste mode that will automatically paste every new object placed on the clipboard (except those copied from UC). Ultraclip can save and read .CLP files that are

compatible with the Clipboard Viewer application that comes with Windows.

UltraClip can read Win 3.0 style bitmap files, .PCX version 5 files, .GIF single image as well as Aldus-style metafiles (the kind produced by Corel, Arts & Letters, and other draw programs). The menu options Desktop Save and Restore let you save the contents of all existing clip windows to disk and restore them later. You can specify the drive and save file name using the configure option.

UltraClip is OLE aware. It does not embed or link to objects, but it lets you store OLE data for embedding and linking in other applications.

UltraClip includes a simple print option that lets you print "cheat sheets" of the current clip windows.

UltraClip carries no warranties, you use it entirely at your own risk. You must determine its suitability for your system and needs. UltraClip requires Windows 3.1 and does not work with Norton Desktop 1.0.

To get your copy of UltraClip, contact Denny Knapp of End User computing at ext. 2072, or on Zip!Mail.

ZIP!Tips

If you frequently send information to the same group of people, you should consider creating a Personal Distribution List in ZIP!Mail. To do so, select Personal from the ZIP!Mail main menu. Next, select Lists, then New. In the "List Name" field, type in the name of your list (up to 12 characters). Using the down arrow key, you can describe in more detail what your list consists of. For instance, you might name your list "Supervisors" and then elaborate in the description area--"Division-Wide". Pressing the Enter key displays the Address Book. Select the desired recipients and press **OK**. Your private list is now added to your address book. (**NOTE:** If you put an exclamation point at the beginning of the list's name, it will be displayed at the beginning of the Address Book.)

When sending information to the members of your list, you can modify the recipients. Simply select the distribution list, then select **Window** to switch to the "Selected Recipients" side of the screen. Pressing the spacebar on a highlighted name will deselect that recipient. You can also locate other addressees in the address book window and add them to the list. This modifies your list for this send only. Maintaining your Personal Distribution List is extremely important. If someone in your list has terminated, their name is removed from the Address Book. When this occurs, a cryptic address (i.e., SSEEOOLLSK or CW0987.TAO01) will replace the person's name in your Personal Distribution List. These addresses should be deleted from your Personal Distribution List. Otherwise, you'll receive error messages when sending to that particular list. Frequently check the members of your distribution list and delete any numerical listings.

If someone changes positions in state government and is assigned a new ACF2 ID #, their name will also appear cryptically in your personal distribution listing, as their name is now associated with a new mail address. In this case, delete the cryptic address from your personal list and then re-add the person's name, as it will still be listed in the Address Book.

For information on distribution lists or any other ZIP!Mail questions, please call Sue Skuletich in End-User Computing at ext. 1392.

From the Sysop's Corner...

The State Bulletin Board System (BBS) will be undergoing some changes shortly. We are working toward a system that will allow BBS users to more efficiently access available information. This access will probably be in two forms: a menu structure with both topic and government organization, and a system to search the on-line documents for a specific subject. We hope to have selected an appropriate software package shortly, and have it in place after the first of the year. Meanwhile, we have attached two new lines to the BBS, added two 14.4Kbaud modems, and upgraded the existing software to the latest version.

After the new software is in place, we will be contacting agencies regarding what they need to

submit to the BBS. Certain items (including environmental assessments, public notices, reports and other items) are required by Section 2-17-322 MCA. Agencies may also want to place information for the public to access on the BBS--such as the road and weather report presently on the BBS. We will try to recommend certain categories of additional information when we contact each agency.

If you have any additional questions about the state bulletin board system, please call the Sysop, Forrest Christian, at ext. 2921.

VS COBOL II Training Scheduled

The State of Montana has contracted with Computer Systems Development Corporation from Sante Fe, California, to teach "VS COBOL II Features" in February. This class is designed for experienced COBOL programmers who have a thorough knowledge of programming in an OS/VS COBOL environment.

IBM Support for OS/VS COBOL will not be available after June 30, 1994; therefore, learning the VS COBOL II environment is necessary. Three separate 8-hour classes will be held to accommodate the volume of users to be trained. The dates available are: February 16th, 17th, or 18th. Early enrollment is encouraged due to the limit set on class participants. To register, please fill out the attached enrollment form and deadhead or fax to the Helena Vo-Tech Center. For more information on the class, please call Glen Stroop at ext. 2910.

Calendar of Events

January 5 Information Technology Managers' Group (ITMG) meeting. Room 209, Cogswell building - 8:30 a.m.

January 11 Information Technology Advisory Council (ITAC) meeting. Room 108, Capitol building - 8:30 a.m.

End Notes

Submit Articles

If you'd like to submit an article to *News and Views* for publication, please send it to Dan Mossman or Brett Boutin, preferably by ZIP!Mail. Please have your article in by the date below for inclusion in the month listed:

February Issue 1/21/94
March Issue 2/18/94

ISD Network Assistance Center 444-2000

Got a problem? Need ISD assistance or support for any of your information processing needs--either voice or data? The central contact point is the ISD Network Assistance Center.

843 copies of this public document were printed at a cost of $264.

Distribution costs are $18.25.

35 copies of this document were distributed electronically at no cost.

Editors: Dan Mossman & Brett Boutin

Training Information

All classes will be held in Room 210 at the Helena Vo-Tech center at 1115 N. Roberts, unless another location is specified. Please note that these costs are subject to change each July 1st.

To enroll in a class, **you must send or deadhead an enrollment application** to the State Training Center, HVTC, Helena, MT 59601. If you have questions about enrollment, please call 444-6800. *Once you enroll in a class, the full fee will be charged UNLESS you cancel at least three business days before the first day of class.*

The classes available and their costs are as follows:

Class Name	Cost	Length in Days
MVS/ESA - Differences from MVS/XA	FREE	¼
Introduction to TSO/SPF	$ 85.00	1
Introduction to JCL (Job Control Language)	340.00	4
Introduction to CICS Programming		5
Introduction to IDMS Database Programming		5
IDMS ADS Online		5
Introduction to CULPRIT	255.00	3
*Subscripting in CULPRIT	FREE	¼
*CULPRIT Programming for IDMS	170.00	2
Introduction to SAS: Module 1	21.25	¼
Module 2	21.25	¼
Module 3	212.50	2½
Introduction to Novell Networks	170.00	2
Novell Network Administration	170.00	2
Novell NetWare System Manager		3
Novell NetWare Advanced System Manager		3
Novell Netware Service & Support		5
PC Maintenance	170.00	2
PC Memory Management	85.00	1
Windows Purchase, Installation and Use Considerations	FREE	¼
*Windows for the Technical Support Team	**	2
Beginning Microcomputer Skills	85.00	1
Fundamentals of DOS	85.00	1
Intermediate DOS	85.00	1
Introduction to Windows	85.00	1
*CorelDraw	85.00	1
*CorelChart	42.50	½
*CorelShow	42.50	½
*Introduction to Quickref/Docview	FREE	½
Introduction to WordPerfect (5.0 or 5.1)	127.50	1½
*Advanced Features of WordPerfect 5.2	127.50	1½
*WordPerfect Complex Document Functions	42.50	½
*More WordPerfect Complex Document Functions	42.50	½
WordPerfect 5.1 Tables	42.50	½
WordPerfect 5.1 Columns and Math Functions	42.50	½
WordPerfect 5.1 Graphics	85.00	1
WordPerfect Merge and Sort Functions	42.50	½

WordPerfect 5.1 Macros	85.00	1
*WordPerfect 5.1 Tips and Tricks	FREE	¼
†Conversion from WordPerfect 5.0 to 5.1	FREE	¼
Introduction to WordPerfect for Windows	85.00	1
Advanced Features of WordPerfect for Windows	170.00	2
*Conversion to WP 5.2 for Windows	42.50	½
Desktop Publishing for WP	85.00	1
*Spreadsheet Design and Documentation	85.00	1
Conversion to Lotus 1-2-3 for Windows Rel.4.0	85.00	1
Introduction to Lotus 1-2-3, (Release 2.4)	170.00	2
Intermediate Lotus 1-2-3, (Release 2.4)	85.00	1
†Lotus 1-2-3 WYSIWYG Features (Release 2.4)	42.50	½
Lotus 1-2-3 Graphics (Release 2.4)	42.50	½
†Lotus 1-2-3, Release 3.1, 3-Dim. Spreadsheets	42.50	½
†Lotus 1-2-3 Printing (Release 2.4)	42.50	½
Freelance for Windows	85.00	1
*Freelance for Windows - Conversion	FREE	¼
Lotus 1-2-3 Macros (Release 2.3, 2.4 or 3.1)	170.00	2
†Introduction to Lotus 1-2-3 Database Features	170.00	2
†Introduction to PFS:Professional File, Ver. 2.0	85.00	1
†Micro Database Concepts and Design	85.00	1
*Introduction to R:Base, Release 3.1	212.50	2½
†Advanced R:Base Release 3.1	170.00	2
R:Base Query and Reports (Rel. 3.1)	85.00	1
R:Base Views (Rel. 3.1)	FREE	¼
†Intermediate R:Base (Rel. 3.1)	170.00	2
†State Telephone Training	FREE	¼
†Orientation to State's Computer Center	FREE	¼
*Introduction to IBM's Library Reader	FREE	¼

* This class is not scheduled during the time covered in this issue.

Training Calendar

Data Network/Mainframe Classes

February 14 & 15	Introduction to Novell Networking
February 16, 17, 18	VS COBOL II
March 1	Introduction to TSO SPF
March 14, 15, 16, 17	Introduction to JCL

Microcomputer Classes

January 18	Introduction to Windows
January 19	PC Memory Management
January 25, 26	PC Maintenance
February 1	Introduction to Windows
February 24	Introduction to DOS
March 8	Freelance for Windows
March 22	Intermediate DOS
March 30	Beginning Micro Skills
March 31	PC Memory Management

Word Processing Classes

January 27 a.m.	WordPerfect Merge & Sort
January 27 p.m.	Word Perfect Macros
January 31	Introduction to WordPerfect for Windows
February 2, 3	Introduction to WordPerfect
February 8	Desktop Publishing for WordPerfect for Windows
February 22, 23	Advanced Features of WordPerfect for Windows
March 9 a.m.	WordPerfect Tables
March 9 p.m.	WordPerfect Columns & Math
March 10	WordPerfect Graphics
March 24	Introduction to WordPerfect for Windows

Spreadsheet Classes

January 10	Conversion to Lotus 4.0 for Windows
January 11	Intermediate Lotus
February 9, 10	Lotus Macros
March 2,3	Introduction to Lotus
March 23	Intermediate Lotus
March 29 a.m.	Lotus Graphics

Database Classes

January 13	R:Base Query & Reports

VS COBOL II: presented by the Computer Systems Development Corporation

DATES: February 16, 1994
February 17, 1994
February 18, 1994
TIME: 8:30 a.m. to 5:00 p.m.
PREREQUISITE: Thorough knowledge of programming in an OS/VS COBOL environment
LOCATION: Helena Vo-Tech Center, 1115 North Roberts, Room 210

This 8-hour course introduces the experienced COBOL programmer to the new features and facilities available in VS COBOL II. Students will learn important differences between OS/VS COBOL and VS COBOL and the areas where modifications will be required to convert older COBOL programs to the new format. New language elements of VS COBOL II will be taught including:

- EVALUATE statement to create case structures
- PERFORM...WITH TEST BEFORE to create "do-while" structures
- PERFORM...WITH TEST AFTER to create "do-until" structures
- In-line PERFORM statements
- Explicit scope terminators

INTRODUCTION TO TSO/SPF: presented by Denny Knapp of the Application Services Bureau

DATE. March 1, 1994
TIME: 8:30 a.m. to 4:30 p.m.
PREREQUISITE: 3270nd (Interactive Class on Terminal Operation)
LOCATION: Helena Vo-Tech Center, 1115 North Roberts, Room 210

"Introduction to TSO/SPF" is a hands-on workshop about using computer terminals (or PC terminal emulators) and the SPF editor. SPF is an easy-to-learn, menu-driven system used to enter data and programs into the State's mainframe computer. Entering data, changing data and submitting programs (jobs) for execution are covered in detail. Also covered are SPF's utility functions and the tracking of job output.

This course is essential for state government personnel using terminals or PC's linked to the State's central computer. It is a prerequisite for many other ISD classes.

INTRODUCTION TO JCL (JOB CONTROL LANGUAGE): presented by Denny Knapp of the Application Services Bureau

DATE: March 14, 15, 16, and 17, 1994
TIME: 8:30 a.m. to 4:30 p.m. each day
PREREQUISITE: Introduction to TSO/SPF
LOCATION: Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is designed for programmers, I/O controllers, operations technicians or users of report-writing software who submit jobs on the State's mainframe system.

The course will cover:

- Syntax and coding of IBM Job Control Language (JCL)

- MVS operating system
- Handling datasets and device assignments
- Some of the IBM utilities
- Troubleshooting and interpreting system messages
- Hands-on experience writing and executing JCL

INTRODUCTION TO NOVELL NETWORKING: presented by the staff of the Helena Vo-Tech Center

DATE:	February 14 and 15, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Intermediate DOS
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will introduce students to the basic concepts of networking in the Novell 3.11 environment. Students will learn how to oversee the operation of a Novell network including managing hardware and software as well as how to set up users, directories, and security. It is important to understand that this course is not part of the CNE certification.

Microcomputer Classes

PC MAINTENANCE: presented by the staff of the Helena Vo-Tech

DATE:	January 25 and 26, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Working knowledge of DOS
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This course is designed to give participants insight into normal routine maintenance of the personal computer. Topics covered will be internal diagnostics, add-on cards, memory management, systems upgrades, hard disk performance tips, and routine troubleshooting techniques.

MEMORY MANAGEMENT: presented by the staff of the Helena Vo-Tech Center

DATE:	January 19, 1994 March 31, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Intermediate DOS and Introduction to Windows
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will students an opportunity to work with memory configurations on the PC. Extended memory and expanded memory will be discussed. Other topics covered will be device drivers, disk caches, RAM disks, and configuring Windows. Some time will also be spent on interactive batch files.

BEGINNING MICROCOMPUTER SKILLS: presented by the staff of the Helena Vo-Tech Center

DATE:	March 30, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Intermediate DOS and Introduction to Windows
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This course will give participants brief hands-on experience with microcomputers. The following topics will be covered:

- The Machine
- The Operating System
- Word Processing
- Spreadsheets and Graphics
- File Management
- Communications

Most class time will be spent using microcomputers and software. This course helps develop a positive attitude toward using microcomputers and teaches their basic functions. This class--or its equivalent--is a prerequisite for our other microcomputer courses.

FUNDAMENTALS OF DOS: presented by the staff of the Helena Vo-Tech Center

DATE:	February 24, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Beginning Microcomputer Skills
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

"Fundamentals of DOS" is intended for microcomputer users who need to know more about controlling the microcomputer through its operating system. Programming experience is NOT required. Topics to be covered include:

- What is DOS? Why is it necessary to know about it?
- DOS names for peripherals
- File naming
- Set-up files such as CONFIG.SYS
- Internal DOS commands - DIR, ERASE, RENAME, TYPE, COPY and their variations
- External commands - FORMAT, SYS, DISKCOPY, CHKDSK, MODE
- Interpreting batch files
- Backup procedures

INTERMEDIATE DOS: presented by the staff of the Helena Vo-Tech Center

DATE:	March 22, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Fundamentals of DOS or equivalent
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class is designed to follow the "Fundamentals of DOS" class and to give the user a better understanding of and increased ability to use DOS. It is not designed for programmers and does not cover all the advanced features of the operating system. The following topics are covered:

- ATTRIB
- Batch File Creation
  - EDLIN
  - Batch file commands
- DISKCOMP
- Filters (FIND, MORE)
- JOIN
- LABEL
- MODE
- REPLACE
- SELECT
- XCOPY

INTRODUCTION TO WINDOWS: presented by the staff of the Helena Vo-Tech Center

DATE:	January 18, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Beginning Microcomputer Skills or three months of daily microcomputer use
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This course is a general introduction to Windows. It will cover the basics and show how Windows makes other applications easier to use and more productive. Topics will include:

- What are Windows - multi-tasking and task switching
- Using DOS applications
- Using Windows accessories and features
- Screen, window and menu navigation
- Window sizing and movement
- Customization

This course will not include training for system administrators and programmers. It will not cover Windows installation, maintenance or advanced features such as use for programming and file/directory management.

FREELANCE GRAPHICS FOR WINDOWS: presented by the staff of the Helena Vo-Tech Center

DATE:	March 8, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Beginning Microcomputer Skills
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will give participants hands-on experience using Freelance for Windows to create many types of figures, drawings, graphs and screen shows. Students will learn to use Freelance's symbol library and freehand drawing capabilities and to link data from Lotus 1-2-3 spreadsheets to create a publication-quality chart or graph.

Word Processing Classes

INTRODUCTION TO WORDPERFECT: presented by the staff of the Helena Vo-Tech Center

DATES:	February 2 and 3, 1994
TIMES:	8:30 a.m. to 4:30 p.m. on first day
	8:30 a.m. to noon on second day
PREREQUISITE:	Beginning Microcomputer Skills or equivalent
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class is a generic introduction to WordPerfect for new users of release 5.0 or 5.1. Experience with WordPerfect is not necessary. Participants will go through the fundamentals of creating, formatting, editing and printing documents. Some advanced features will also be covered, including checking spelling, finding a word or phrase, marking blocks of text, moving text and listing/retrieving document files.

ADVANCED WORDPERFECT 5.2 FOR WINDOWS: presented by the staff of the Helena Vo-Tech Center

DATE:	February 22 and 23, 1994
TIME:	8:30 a.m. to 4:30 p.m. on first day 8:30 a.m. to noon on second day
PREREQUISITE:	Introduction to WordPerfect 5.0 and Introduction to Windows
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

For those already using WordPerfect for Windows 5.2, the advanced class will cover footnotes, column generation, sorting capabilities, dual document editing, font changes within a document, creation of style sheets and master documents, keyboard layout, the compose function and graphics.

WORDPERFECT 5.1 TABLES: presented by the staff of the Helena Vo-Tech Center

DATE:	March 9, 1994
TIME:	8:30 a.m. to 12:00 p.m.
PREREQUISITE:	Introduction to WordPerfect 5.0 or 5.1
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will cover the creation of tables in WordPerfect 5.1. Once students practice with WordPerfect's Tables feature they will be able to create and edit large, complex tables and provide automatically for table entries requiring calculation. Students will learn to create tables with text only or with combinations of text and numbers. Students will use math functions and create formulas to generate table entries and will define and generate column totals and row totals.

WORDPERFECT 5.1 COLUMNS AND MATH FUNCTIONS: presented by the staff of the Helena Vo-Tech Center

DATE:	March 9, 1994
TIME:	1:00 p.m. to 4:30 p.m.
PREREQUISITE:	Introduction to WordPerfect 5.0 or 5.1
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will cover the column and math features in WordPerfect 5.1. Students will learn to set up and edit newspaper and parallel columns of various widths and lengths. They will practice editing text or figures in columns without losing the desired layout or visual effect. For column entries requiring calculation, subtotals and totals, students will learn to create and use column definitions, math functions, and formulas.

WORDPERFECT MERGE AND SORT FUNCTIONS: presented by the staff of the Helena Vo-Tech Center

DATE:	January 27, 1994
TIME:	8:30 a.m. to noon
PREREQUISITE:	Introduction to WordPerfect 5.0 or 5.1
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will cover the file merge and sort features of WordPerfect. Students currently using WordPerfect 5.0 or 5.1 will have hands-on practice with the steps needed to generate files sorted in a variety of ways. They will also learn to merge primary and secondary files for mass mailings, for example, and to set up files for keyboard merges.

WORDPERFECT 5.1 GRAPHICS: presented by the staff of the Helena Vo-Tech Center

DATE:	March 10, 1994
TIME:	8:30 a.m. to 3:30 p.m.
PREREQUISITE:	Introduction to WordPerfect
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will cover the creation and use of WordPerfect 5.1 graphics. Students will learn to create and edit graphic figures, boxes and lines. Hands-on exercises will include using these boxes, figures and lines with a variety of fonts and with the compose function. The class will also cover changes in the Setup and Print functions often associated with graphics.

WORDPERFECT 5.1 MACROS: presented by the staff of the Helena Vo-Tech Center

DATE:	January 27, 1994
TIME:	1:00 p.m. to 4:30 p.m.
PREREQUISITE:	Introduction to WordPerfect 5.0 or 5.1
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This is a seminar class that will cover the theory and construction of basic WordPerfect macros. Class will begin with simple hot key and named macros and proceed through the introductory level of the macro language. Special macros will be created such as capturing inside addresses for printing envelopes and building simple menus for lists of commonly used tasks. Students are encouraged to bring examples of tasks for instructor assisted class projects.

DESKTOP PUBLISHING WITH WORDPERFECT FOR WINDOWS 5.2: presented by the staff of the Helena Vo-Tech Center

DATE:	February 8, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Introduction to WordPerfect for Windows 5.2
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will combine all the essential elements of desktop publishing--text, graphic images, and page design and layout--to create and print professional-looking documents. Students will work with fonts and type sizes, kerning, multicolumn formats, graphic lines, graphic boxes, and graphic images. Also covered will be use of the scanner to produce graphic images.

INTRODUCTION TO WORDPERFECT 5.2 FOR WINDOWS: presented by the staff of the Helena Vo-Tech Center

DATES:	January 31, 1994 March 24, 1994
TIMES:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Beginning Microcomputer Skills and Introduction to Windows
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class is designed as a basic introduction to WordPerfect for Windows. Experience with WordPerfect is not necessary. Participants will go through the fundamentals of creating, formatting, editing and printing documents. Some advanced features will also be covered, including spell checking, searching for words or phrases, marking blocks of text, moving text and listing/retrieving document files.

Spreadsheet Classes

INTRODUCTION TO LOTUS 1-2-3, RELEASE 2.4: presented by the staff of the Helena Vo-Tech Center

DATE:	March 2 and 3, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Beginning Microcomputer Skills
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class is a generic introduction to Lotus 1-2-3 for persons with little or no Lotus experience. It will consist of instructions and hands-on practice, with lab time available for building spreadsheets of the participants' choosing.

The class will cover design, creation, printing and editing of spreadsheets. Additional topics will include selected graphic features, the use of formulae to connect spreadsheets, and the opening of multiple files at the same time. Students will learn about new WYSIWYG (What You See Is What You Get) features of Releases 2.3 and 3.1 such as enhanced printing of spreadsheets and graphs.

LOTUS 1-2-3 GRAPHICS: presented by the staff of the Helena Vo-Tech Center

DATE:	March 29, 1994
TIME:	8:30 a.m. to 12:30 p.m.
PREREQUISITE:	Introduction to Lotus 1-2-3
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This course is intended for users of Release 2.3, 3.1 or 3.1+ who are already using Lotus 1-2-3 to create spreadsheets. After a review of the basic Graph features, students will explore options such as automatic graph creation, group data ranges, graph windows, graph areas and Named versus Saved graphs. The class will then cover graphic display and print options. Students will learn to select colors, patterns, fonts and graph types and to save graphs and incorporate graphics into their spreadsheets.

INTERMEDIATE LOTUS 1-2-3, RELEASE 2.3 OR 3.1: presented by the staff of the Helena Vo-Tech Center

DATE:	January 11, 1994 March 23, 1994
TIME:	8:30 a.m. to 4:30 p.m.
PREREQUISITE:	Introduction to Lotus 1-2-3
LOCATION:	Helena Vo-Tech Center, 1115 North Roberts, Room 210

This course is intended for users of Release 2.3, 3.1 or 3.1+. It covers intermediate features of Lotus 1-2-3 for those who are familiar with Lotus basics. It consists of instructions and hands-on practice, with lab time available for building spreadsheets of the students' choosing.

The following topics will be presented:

- @ functions
- Date and time formats and functions
- Ranges--naming, hiding and protecting ranges; using range commands
- Global defaults

- Titles, windows and text editing

Time permitting, the following topics will be covered with some hands-on practice:

- Selected file functions and file linking
- Magellan Viewer Addin (available in Releases 2.3 and 3.1+ only)
- Auditor Addin (available in Releases 2.3 and 3.1+ only)

LOTUS 1-2-3 MACROS: presented by the staff of the Helena Vo-Tech Center

DATES: February 9 and 10, 1994
TIMES: 8:30 a.m. to 4:30 p.m. each day
PREREQUISITE: Beginning and Advanced Lotus 1-2-3 Release 2.2
LOCATION: Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class is designed for those who want to learn about Lotus 1-2-3 macros. It will consist of instruction, demonstrations, and hands-on practice with lab time available to build spreadsheets of participant's choosing. The class will concentrate on using 1-2-3 Release 2.3 to design, create, and edit macros to perform simple operations or redundant tasks. The material covered will apply to all releases of Lotus 1-2-3 (2.2, 2.3, and 3.1). It will include writing and debugging macros, using the keystroke recorder, and using advanced macro commands.

CONVERSION TO LOTUS 4.0 FOR WINDOWS: presented by the staff of the Helena Vo-Tech Center

DATES: January 10, 1994
TIMES: 8:30 a.m. to 4:30 p.m.
PREREQUISITE: Introduction to Lotus, Introduction to Windows or equivalent
LOCATION: Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class is designed for persons who are experienced with Lotus. It will cover the functional differences between the DOS version of Lotus and Lotus for Windows Version 4.0. An emphasis will be placed on the graphic user interface elements which make Lotus for Windows look and feel like other Windows products.

Database Classes

R:BASE QUERY AND REPORTS, RELEASE 3.1: presented by the staff of the Helena Vo-Tech Center

DATE: January 13, 1994
TIME: 8:30 a.m. to 4:30 p.m.
PREREQUISITE: Introduction to R:Base
LOCATION: Helena Vo-Tech Center, 1115 North Roberts, Room 210

This class will expand on report writing topics covered in "Introduction to R:Base." Topics include writing reports using breakpoints and R:Base functions. Also covered will be more information about queries and views as they relate to reports.

CLASS ENROLLMENT APPLICATION

COMPLETE THIS APPLICATION ***IN FULL AND SUBMIT IT AT LEAST ONE WEEK PRIOR*** *TO THE FIRST DAY OF CLASS*

COURSE DATA

Course Requested: _____

Date Offered: _____

STUDENT DATA

Name: _____

Soc. Sec. Number (for P/P/P): _____

Agency & **Division:** _____ / _____

Mailing Address: _____

_____

Phone: _____

How have you met the required prerequisites for this course? Explain, giving the class(es) taken, tutorial(s) and/or experience.

_____

_____

_____

BILLING INFORMATION/AUTHORIZATION **MANDATORY**

Responsibility Center: _____

Authorized Signature: _____

FULL CLASS FEE WILL BE BILLED TO THE REGISTRANT UNLESS CANCELLATION IS MADE THREE BUSINESS DAYS BEFORE THE START DATE OF THE CLASS.

DEADHEAD OR MAIL COMPLETED FORM TO:

HELENA VO-TECH CENTER
COMPUTER TRAINING CENTER
1115 NORTH ROBERTS, HELENA 59601
FAX 444-6892

DEPARTMENT OF ADMINISTRATION
INFORMATION SERVICES DIVISION
ROOM 221, MITCHELL BLDG
PO BOX 200113
HELENA MT 59620-0113